

AMERICAN
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STEAM NAVIGATION, COMMERCE, FINANCE,

INSURANCE, BANKING, MINING, MANUFACTURES.

HENRY V. POOR, *Editor.*

SATURDAY, APRIL 30, 1859.

Second Quarto Series, Vol. XV., No. 18.---Whole No. 1,202, Vol. XXXII.

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NEW-YORK:

PUBLISHED WEEKLY, BY

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SATURDAY, APRIL 30, 1859.

[WHOLE No. 1,202, VOL. XXXII.]

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American Railroad Journal.

PUBLISHED BY J. H. SCHULTZ & CO. NO. 9 SPRUCE ST.

New York, Saturday, April 30, 1859.

Central Railroad of New Jersey.

The following is a comparison of the receipts, expenses and net earnings of the Central railroad of New Jersey for the fiscal year ending March 31, 1859, with the previous fiscal year:—

	1859.	1858.	Increase.
Receipts ..	\$870,953	\$682,940	\$188,013 or 28 per ct.
Expenses ..	350,281	325,748	24,533 or 8 per ct.

Netearn's. \$520,672 \$357,192 \$163,480 or 46 per ct.

The following disposition has been made of the net earnings:

Interest on \$3,000,000 bonds	\$210,000 00
Interest on incomes, notes, &c	46,672 26
Loss in redeeming \$260,000 income bonds	20,650 00
Sundry charges for depreciation	13,499 01
Income bonds towards loss on future purchases	6,000 00
Taxes to State	23,854 34
Dividend, ten per cent.	200,000 00

Total

\$520,675 61
This dividend, which has been made in stock, represents that amount of the net earnings applied to the redemption of the income bonds, estimating them at the rate at which they were issued.

Montgomery and West Point Railroad.

The annual meeting of the stockholders in this road was held at Montgomery, Ala., on the 12th inst., at which the old board of directors were unanimously re-elected. At this meeting a resolution was passed agreeing to endorse, in connection with the railroad companies east, the bonds of such roads west of Montgomery as are necessary to fill the gaps between that point and Vicksburg, and to the extent necessary to insure the completion of those roads.

The annual report of the company for the fiscal year ending February 28th, 1859, was presented. From this we learn that the receipts during that time were:

From passengers	\$235,271 79
" freight	179,829 92
" mail	31,052 30
Total	\$446,153 92

And the expenses were—

Maintenance of road	\$80,170 23
Do. equipment	80,302 72
Operating road	51,974 52
Incidental	21,825 00

	\$234,272 47
Interest paid on loans	65,050 68
	302,323 15

Leaving a net income of

\$143,830 77
—a fraction over 10 per cent. on the capital stock of the Company paid in, amounting to \$1,419,672; out of which has been declared two semi-annual dividends of three dollars per share, amounting to \$86,302 46; leaving a surplus to the credit of Reserved Fund of \$57,528 31.

A comparison of the earnings of the past with those of the preceding year, shows a gratifying increase in each department. The total increase being \$55,269 87.

Since the completion of the road the business has steadily increased, as will be seen by the following statement:

1854	\$230,046 65	1857	\$385,723 53
1855	249,628 69	1858	390,884 05
1856	332,873 91	1859	446,153 92

The trains have been run with unusual regularity and freedom from accident or serious detention, and during a period of four months, not a single mail train failed to make its regular connection with the adjoining roads.

There have been carried over the road during the year, 104,094 passengers, none of whom have received the slightest injury; and the loss and damage to freight, and property of all kinds transported, has been but \$887 94, being less than one fifth of one per cent. of gross receipts.

The condition of the road and outfit in every department has been as rapidly improved and increased as the means of the company would warrant. Within the past four years, trestle work has been replaced by permanent earth work, and substantial stone culverts and abutments have been constructed wherever it could be done to advantage. Of the 48 miles of flat bar iron then in use but five miles now remain, which will be replaced with T rail by the 1st of October next.

The equipment of the road consists of 20 engines; 12 first class, 2 second class, 10 baggage and mail, and 262 freight and construction cars: to which four locomotives and fifty freight cars will be added during the present year.

GENERAL STATEMENT.

Capital stock	\$1,419,672 00
Due State of Alabama	122,621 77
Coupon bonds due May 1, 1860	\$100,000
Coupon bonds due May 1, 1863	150,000
Coupon bonds due May 1, 1865	100,000
Coupon bonds due July 1, 1866	450,000
	800,000 00
Due on open account	18,956 90
Net earnings for 1858-9 ..	\$143,830 77
Less div. Nov. 1, 1858.	42,588 72
	101,242 05

	\$2,462,492 72
Cost of road—including bridge over the Chattahoochee	\$1,819,408 21
Cost of engines and cars	279,435 00
" shops and tools	49,050 35
Real estate and depot buildings ..	47,704 61
Wood etc. on hand	6,586 30
Ala. and Florida railroad stock ..	100,000 00
Negroes, etc	59,806 86
Cash and cash items	102,056 39
	\$2,462,492 72

OFFICERS.

C. T. POLLARD, *President.*

W. H. POLLARD, *Treasurer.*

DANIEL H. CRAM, *Superintendent.*

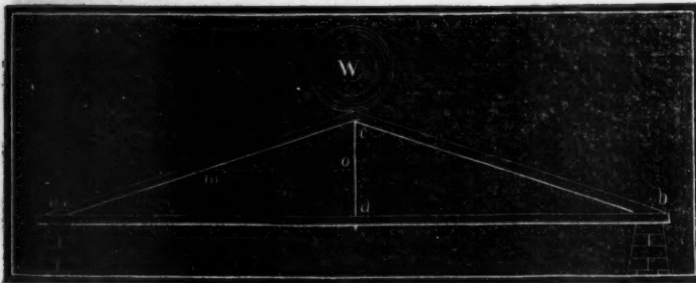
TREATISE ON THE PRINCIPLES OF CIVIL ENGINEERING AS APPLIED TO THE CONSTRUCTION OF WOODEN BRIDGES.

By S. S. POST, *Civil Engineer,*
And late Chief Engineer of the N. Y. & Erie R. R.

(Continued from p. 261.)

§ 79. When the beam is not a solid one, but a combination, like a bridge truss, of parts acted upon only by thrust or tensile strains, the directions of those strains are coincident with the direction of the fibre of the timber, and considerable modifications, in the application of the foregoing principles, will sometimes be necessary.

Fig. 37.

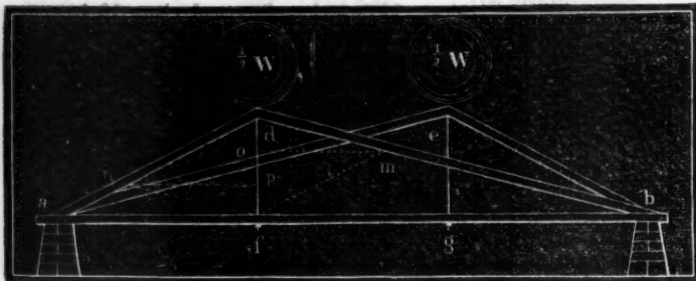


pp. This is one of the simplest forms of truss in use. The weight (W) applied at the middle, and is sustained equally by the abutments (a and b). It acts, also, obliquely through the braces (ac and bc), giving rise to horizontal forces which are counteracted by the tie or chord (ab).

Suppose the height of truss 1 yard, and span, 6 yards. The length of the rafters or braces (ac and bc) $\sqrt{3^2+1^2}=3.162$ yards, and the weight (W) 1,000 lbs.

The oblique thrust of the braces will then be $cd : cm :: W : \text{thrust}$; or, $1 : 1.581 :: 1,000 : 1,581$ lbs. The tension upon the chord (ab) will be $cd : om :: W : \text{tension}$; or, $1 : 1.5 :: 1,000 : 1,500$ lbs.

Fig. 38.



qq. Fig. 38 is another form of truss, of the same span and height as the last, but composed of two pairs of rafters or braces, of unequal lengths, arranged for the support of equal weights, at one-third the distance from each abutment.

Now, of the weight applied at d, two-thirds are sustained at a, and one-third at b; for $dp = \frac{1}{3}df$, and $do = \frac{1}{3}df$. Consequently, if the weight at d be 1,000 lbs., the brace ad will be subject to a vertical pressure of 666 lbs., and the brace bd to a vertical pressure of 333 lbs.

The length of the brace ad will be $\sqrt{2^2+1^2}=2.236$ and of the brace bd $\sqrt{4^2+1^2}=4.123$. The oblique strains upon the braces will then be,

$$1 : 2.236 :: 666 : 1,490 \text{ lbs., on } ad, \text{ and}$$

$$1 : 4.123 :: 333 : 1,374 \text{ lbs., on } bd.$$

The tension upon the chord (ab) will be,

$$dp : pn :: df : fa :: 1 : 2 :: 666 : 1,333 \text{ lbs.; or,}$$

$$do : om :: df : fb :: 1 : 4 :: 333 : 1,333 \text{ lbs.}$$

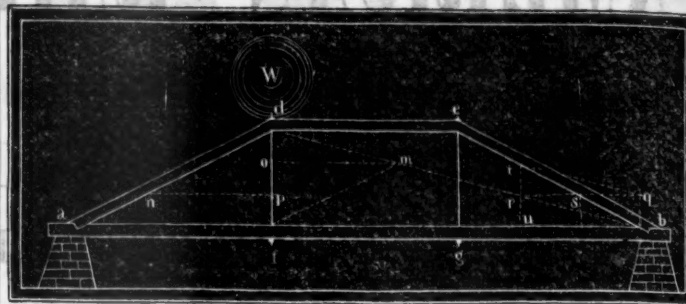
rr. In the other example, (**pp.** Fig. 37), where the weight was applied at the centre, the tension was found to be 1,500 lbs. These tensions are therefore, as the rectangles of their respective segments, (§ 78), that is :

$$3 \times 3 : 4 \times 2 :: 1,500 : 1,333.$$

ss. Placing another weight of 1,000 lbs. at e, an additional tension of

1,333 lbs. will be produced, making a total horizontal strain, upon the whole length of the chord (ab), of 2,666 lbs.

Fig. 39.



tt. Fig. 39 is a truss of the same length and height as in the last two cases, but has a straining beam (de), one-third the span in length, instead of the two longer braces (ac and bd, Fig. 38).

If at d, one-third of the span from a, a weight of 1,000 lbs. be applied, of that weight (§ 77) will be sustained at a and $\frac{1}{3}$ at b. The strains, to which the brace ad will be subjected, are, vertical 666 lbs., oblique 1,490 lbs., and horizontal 1,333 lbs., precisely as in Fig. 38.

This horizontal thrust acts, equally, upon the chord in the direction ba, and upon the straining beam in the direction de.

The vertical and horizontal pressures are to each other, as $dp : pn$, and $do : om$, but, $do : om :: df : fb$; and $do : dm :: df : db$.

Thus the resultant, of the vertical and horizontal forces on this side of the weight, is represented in force and direction by dm, and, also, in direction by db.

One-third of the weight at d will, therefore, act upon the abutment b, through the intervention of the straining-beam and braces with the same vertical and horizontal forces, as it would through a straight brace from d to b, as in Fig. 38, for $do : dm :: 1 : \sqrt{4^2+1^2} = \sqrt{17} = 4.123 :: 333 : 1,374$.

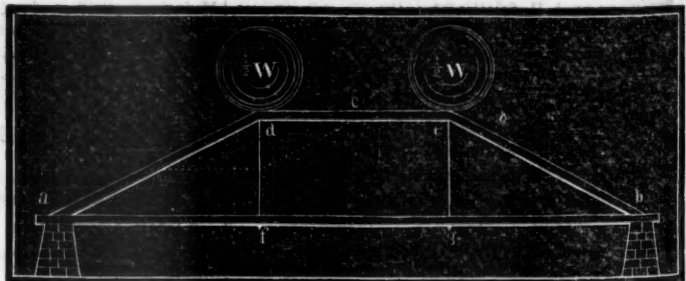
The brace be is resisted at b by a vertical pressure $bq = ru = do = 333$ lbs.; and by a horizontal pressure $bu = om = 1,333$ lbs., the resultant of which is $br = dm = 1,374$ lbs. Resolving this force again, into those of de and eb,

$$bd : br :: de : rs, \text{ and } bd : br :: be : bs, \text{ and}$$

$$br : bt :: 4.123 : 4.472 :: 1,374 : 1,490 = bt :$$

but $bs = \frac{1}{2}bt = 745$, therefore the oblique thrust of the brace be is one-half that of ad.

Fig. 40.



uu. This truss is in every respect like the last one, but with two equal weights applied at equal distances from the middle, as in Fig. 38. The horizontal strain upon the chord, as the effect of 1,000 lbs. vertical pressure at d, was 1,333 lbs. It may, at first, seem reasonable to conclude that the effect of another weight of 1,000 lbs. applied at e, will be the same, and that the joint effect of the two vertical pressures, will be a horizontal strain of 2,666 lbs. This, however, is not the result.

By substituting the straining-beam (de) in place of the long braces in Fig. 38, the whole vertical force acts upon the short braces and at a greater angle with the horizon, than when divided between the braces of unequal length.

In Fig. 38, two-thirds of the weight act upon the braces under an inclination of 1 : 2, and one-third of the weight acts under an inclination of 1 : 4. Their horizontal results sum up 2,666 lbs., that is, $1 : 2 :: 666 : 1,333$ and $1 : 4 :: 333 : 1,333$.

But in the present case (Fig. 40), the whole weight acts upon the braces under an inclination of 1 : 2.

With 1,000 lbs. at *d* the vertical pressure at *a* was 666½ lbs., and at *b* 333½ lbs. Putting the other weight of 1,000 lbs. at *e*, the pressure at *a* will be increased 333½ lbs. and at *b* 666½ lbs., so that the two weights will counter-balance each other. The vertical pressure, at each of the points *a* and *b*, will be 1,000 lbs., and the same at *d* and *e*. Then

$$df : af :: 1 : 2 :: 1,000 : 2,000 \text{ lbs.}$$

Therefore, the horizontal thrust of the brace (*ad*), the tension upon the chord (*ab*), and the crushing tendency upon the straining-beam (*de*) will be equal to 2,000 lbs.

Again, The weights are applied at one-third the distance from the middle of the truss, and act upon the middle point with two-thirds their vertical force, or 1,333½ lbs. Then

$$1 : 3 :: \frac{1,333\frac{1}{2}}{2} : 2,000 \text{ lbs. That is}$$

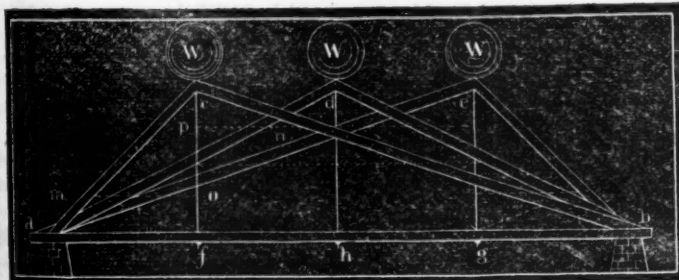
the height of truss : ¼ the span :: ¼ weight at middle : horizontal strain.

VV. If the whole weight (2,000 lbs.) had been applied at the middle, the horizontal strain would have been $1 : 3 :: \frac{2,000}{2} : 3,000 \text{ lbs.}$; and if the whole weight had been evenly distributed, from one end to the other of the truss, the horizontal effect would have been the same as would be produced by 1,000 lbs. applied at the middle, (§ 28); or, $1 : 3 :: \frac{1,000}{2} : 1,500 \text{ lbs.}$

Now, $1,500 : 1,333\frac{1}{2} :: 3 \times 3 : 2 \times 4$, that is, the horizontal effect produced by a weight uniformly distributed, is to that of one-half the same weight applied at one point, as the square of one half the span, is to the rectangle of the two segments of the span.

Different forms of truss for the support of three cross beams, or of weights applied at three equi-distant points, are represented by Fig. 41, 42 and 43.

Fig. 41.



WW. The height of this truss is ¼ its span. Constructing the parallelograms of forces, the strains upon its several parts are found to be as follows:

The weight at *d*, upon the central pair of braces, is equally divided between the two. The vertical pressure upon each is, therefore, ½ *W*. The oblique thrust is

$$1 : \sqrt{2^2 + 1^2} = \sqrt{5} = 2.236 :: \frac{1}{2} W : 1.118 W.$$

The horizontal strain is $1 : 2 :: \frac{1}{2} W : W$.

Putting the weight $W = 1,000 \text{ lbs.}$, these strains will be 1,118 lbs. oblique, and 1,000 lbs. horizontal.

The weight at *e*, upon the braces *ac*, *be* is divided between the two, unequally, for

$cf : co :: 1 : 4$, and $of : cp :: 1 : 4$. Then

$1 : 4 :: W : \frac{1}{4} W = \text{vertical pressure on brace } ac$, and

$1 : 4 :: W : \frac{1}{4} W = \text{vertical pressure on brace } be$.

The lengths of these rafters are:

$$\sqrt{1^2 + 1^2} = \sqrt{2} = 1.414 = \text{length of brace } ac.$$

$$\sqrt{3^2 + 1^2} = \sqrt{10} = 3.162 = \text{length of brace } be.$$

Their oblique strains are:

$$1 : 1.414 :: \frac{1}{4} W : 1.0605 W = \text{thrust of } ac,$$

$$1 : 3.162 :: \frac{1}{4} W : 0.7905 W = \text{thrust of } be,$$

and the horizontal strain is,

$$cf : co :: 1 : 4, \text{ or as } cf : pn :: 1 : 4, \text{ and}$$

$$1 : 4 :: W : 4 W = \text{tension on } ab.$$

Putting $W = 1,000 \text{ lbs.}$, then the strains will be—

$$1,060\frac{1}{2} \text{ lbs. oblique thrust of } ac,$$

$$790\frac{1}{2} \text{ " " " " } be,$$

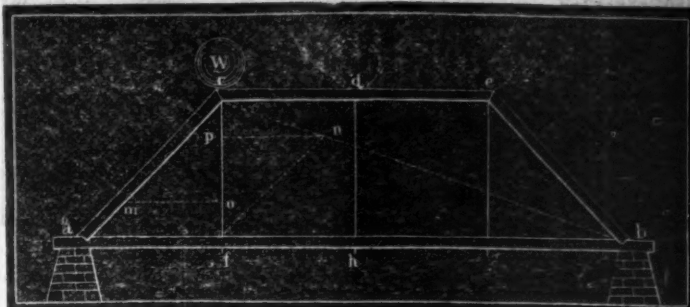
$$750 \text{ " tension on } ab.$$

The horizontal effect of the weight at *d* is to the horizontal effect of the weight at *e* as the rectangle of the segments *ah*, *hb* to the rectangle of the segments *af*, *fb*, for $2 \times 2 : 3 \times 1 :: 4 : 3 :: 1,000 : 750$.

Applying the third weight of 1,000 lbs. at *e*, the sum of the horizontal strains upon the chord *ab* will be—

$$\frac{1}{4} W + W + \frac{1}{4} W = 2\frac{1}{4} W; \text{ or, } 750 + 1,000 + 750 = 2,500 \text{ lbs.}$$

Fig. 42.



XX. This truss is of the same length and height as the last; but consists of a straining beam half the span in length, and two braces of the length of the shortest in Fig. 41, instead of the three pairs of braces. Also, the tie-beams or chord common to both trusses.

First, place a single weight at *e* and construct the parallelogram of forces *acdf*, making *co* = ¼ *cf*, to represent the vertical pressure at *a*, and *cp* = ¼ *cf*, the vertical pressure at *b*. The horizontal thrust of the brace *ac*, will be ¼ *W*, for *cf* : *om* :: 1 : 4, and $1 : 4 :: W : \frac{1}{4} W$, as in Fig. 41.

The horizontal pressure in the direction *ce* is *pn* = *om*, and *cp* is the vertical pressure on that side of *e*. The resultant of these two pressures is *cm* and acts in the direction *cb*.

The oblique thrust of the brace *ac* is—

$$cf : co :: 1 : 4 :: ca : cm :: \sqrt{2} = 1.414 : 1.0605 :: 1.414 W : 1.0605 W.$$

Similarly it may be shown that the oblique thrust of the brace *be* is $0.3535 W = \frac{1}{4}$ of the thrust of *ac*.

Putting the weight *W* equal 1,000 lbs., the thrust in the direction of the brace *ac* will be 1,060.5 lbs., of the brace *be* 353.5 lbs., and the tension upon the chord 750 lbs.

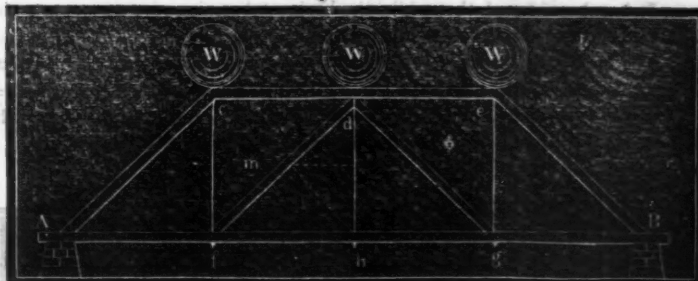
At *e* place another weight of 1,000 lbs., and the two weights will counter-balance each other. The weight at *e* will be wholly supported by the brace *ac*, and the weight at *e* will be sustained by the brace *be*.

Each brace will be subjected to an oblique strain of $1,060.5 \text{ lbs.} + 353.5 = 1,414 \text{ lbs.} = 1,000 \text{ lbs.} \times \sqrt{2}$, and to a horizontal thrust of 1,000 lbs., for $1 : 1 :: W : W :: 1,000 : 1,000$.

A third weight of 1,000 lbs., at *d*, will depend for its support upon the stiffness of the straining-beam, one-half bearing at *e*, and one-half at *e*.

The vertical action upon each brace will be increased to $1.5 W = 1,500 \text{ lbs.}$; their oblique thrusts $1.5 W \times 1.414 = 2,121 \text{ lbs.}$, and their horizontal thrusts to $1.5 W = 1,500 \text{ lbs.}$

Fig. 43.



YY. For the purpose of relieving the top chord from a transverse strain, and of transferring the vertical effect of a weight at *d*, to the extremities of the top chord (*ce*), it is usual to insert the intermediate braces *df*, *dg*.

By means of these, one-half the vertical pressure at *d* is transmitted to *g*, and thence by the tension of the vertical tie (*eg*) to *e*. The other half of the pressure is in like manner transmitted to *f*, and thence to *e*.

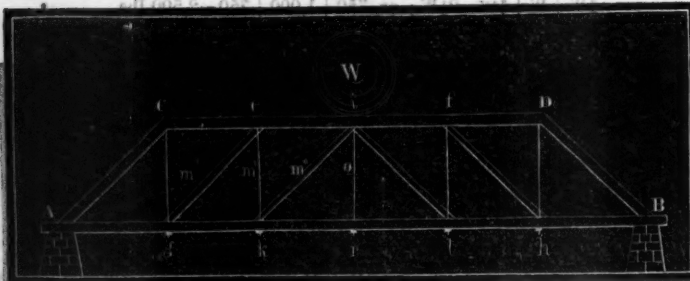
The oblique strains upon these central braces will be $\frac{1}{4} W \times 1.414 = 0.707 W = 707 \text{ lbs.}$, or exactly ¼ of the strain upon the end braces.

The horizontal thrust of these braces will be—

$$1 : 1 :: 1.5W : 1.5W :: 500 : 500 \text{ lbs., acting only between } f \text{ and } g.$$

The horizontal strains upon the bottom chord, are between f and $g=2,000$ lbs., and between the points a and f , and b and $g=1,500$ lbs.

Fig. 44.



XX. This figure exhibits a truss of six panels, for the support of a load at five equi-distant points between the abutments. The height is $\frac{1}{2}$ of the span, and, consequently, the panels are square, or their sides are equal.

The weight ($W=1,000$ lbs.) acts directly, as in the other cases, upon the points A and B .

The total horizontal strain upon the chords, with the weight at the middle of the truss, is

$$ir : Ar :: io : mo :: 1 : 3 :: \frac{1}{4}W : \frac{3}{4}W :: 500 : 1,500 \text{ lbs.}$$

If the abutments were to be removed to g and h , the horizontal strain upon the chord, between those points would become—

$$ir : gr :: io : m'o :: 1 : 2 :: \frac{1}{4}W : W :: 500 : 1,000 \text{ lbs.}$$

Again, supposing the abutments to be removed to k and l , the horizontal strain, between k and l , will be—

$$ir : kr :: io : m''o :: 1 : 1 :: \frac{1}{4}W : \frac{1}{4}W :: 500 : 500 \text{ lbs.}$$

With the abutments at A and B the horizontal thrust in the direction rA is 1,500 lbs., which is equally balanced by a corresponding thrust (§ 78) in the direction rB . The effect of transferring the weight to g and h through the intervention of the intermediate braces, is to intercept, between those points, 1,000 lbs. of that total thrust. That is, of the 1,500 lbs. acting upon A in consequence of the strain in the direction of B , 1,000 lbs. are counteracted by the thrust of the braces ik and eg in the direction of A .

Of the 1,000 lbs. acting between g and h , 500 lbs. are intercepted between k and l ; so that the horizontal strains upon the several portions of the chord are as follows:

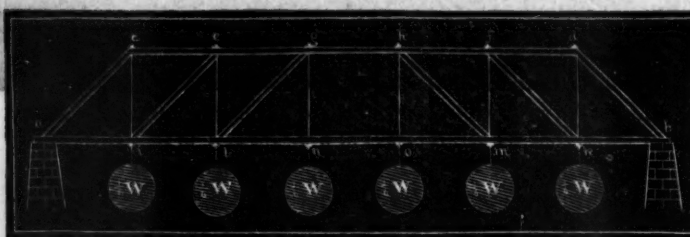
$$\begin{aligned} \text{Between } k \text{ and } l & \dots\dots\dots 500 + (1,000 - 500) + (1,500 - 1,000) = 1,500, \\ \text{" } g \text{ " } k \text{ and } l \text{ and } h & (1,000 - 500) + (1,500 - 1,000) = 1,000, \\ \text{" } A \text{ " } g \text{ " } h \text{ " } B & (1,500 - 1,000) = 500. \end{aligned}$$

The horizontal strains upon the portions Ag , gk and kr , are, therefore, directly as the distances Ag , gk and kr , from the abutment A . The weight (W) being at the middle of the truss, the oblique thrust of the braces will be uniform, or equal to each other, as will be seen on another view of the pressures produced by that weight.

It has been found that while the horizontal strains vary as mo , $m'o$ and $m''o$, the vertical pressures (io) remain constant.

The horizontal thrust of the brace ik is $m'o = \frac{1}{4}W = 500$ lbs. The vertical $\frac{1}{4}W$ is transferred to e , and the horizontal thrust of the brace eg is $m'm' = m'o - m''o = 500$ lbs. The $\frac{1}{4}W$ is again transferred to C , and the horizontal thrust of the brace CA , is $mm' = (mo - m'o) = 500$ lbs.

Fig. 45.



XXX. This is a truss of seven square panels with $\frac{1}{2}$ of the whole weight ($\frac{1}{2}W$) applied at each vertical tie.

The vertical pressures at a and b will be, of the—

$$\begin{aligned} \frac{1}{6}W \text{ at } ci, \quad \frac{6}{7} \times \frac{1}{6}W &= \frac{6}{42}W \text{ at } a \text{ and } \frac{1}{7} \times \frac{1}{6}W = \frac{1}{42}W \text{ at } b, \\ \frac{1}{6}W \text{ at } el, \quad \frac{5}{7} \times \frac{1}{6}W &= \frac{5}{42}W \text{ " " " } \frac{2}{7} \times \frac{1}{6}W = \frac{2}{42}W \text{ " " " } \\ \frac{1}{6}W \text{ at } gn, \quad \frac{4}{7} \times \frac{1}{6}W &= \frac{4}{42}W \text{ " " " } \frac{3}{7} \times \frac{1}{6}W = \frac{3}{42}W \text{ " " " } \\ \frac{1}{6}W \text{ at } ho, \quad \frac{3}{7} \times \frac{1}{6}W &= \frac{3}{42}W \text{ " " " } \frac{4}{7} \times \frac{1}{6}W = \frac{4}{42}W \text{ " " " } \\ \frac{1}{6}W \text{ at } fm, \quad \frac{2}{7} \times \frac{1}{6}W &= \frac{2}{42}W \text{ " " " } \frac{5}{7} \times \frac{1}{6}W = \frac{5}{42}W \text{ " " " } \\ \frac{1}{6}W \text{ at } dk, \quad \frac{1}{7} \times \frac{1}{6}W &= \frac{1}{42}W \text{ " " " } \frac{6}{7} \times \frac{1}{6}W = \frac{6}{42}W \text{ " " " } \end{aligned}$$

$$\text{Total } W \quad 3 \times \frac{1}{6}W = \frac{1}{2}W \text{ at } a \text{ and } 3 \times \frac{1}{6}W = \frac{1}{2}W \text{ at } b.$$

The panels being square the horizontal thrust of each brace will be equal to the vertical pressure upon it. The oblique strains will be $\sqrt{2}=1.414$ times the vertical pressure.

Assuming 60,000 lbs. as the whole weight (W) upon the truss, or 10,000 lbs. ($\frac{1}{6}W$) applied at each vertical tie, the pressures upon the braces, taken in pairs, will be

$$\begin{aligned} \text{Vertical on } gl \text{ and } hm, & 10,000 \text{ lbs. each,} \\ \text{" " } ei \text{ " } fk, & 20,000 \text{ " " } \\ \text{" " } ca \text{ " } db, & 30,000 \text{ " " } \end{aligned}$$

and the horizontal and oblique strains, or thrusts of the braces will be, on

$$\begin{aligned} gl \text{ and } hm & 10,000 \text{ lbs. horizontal and } 14,140 \text{ oblique,} \\ ei \text{ " } fk & 20,000 \text{ " " " } 28,280 \text{ " } \\ ca \text{ " } db & 30,000 \text{ " " " } 42,420 \text{ " } \end{aligned}$$

The horizontal strain upon the bottom chord will be between

$$\begin{aligned} a \text{ and } i \text{ and between } b \text{ and } k, & 30,000 \text{ lbs.} \\ i \text{ " } l \text{ " " } k \text{ " } m, & 50,000 \text{ " } \\ l \text{ " } m \dots\dots\dots & 60,000 \text{ " } \end{aligned}$$

These six weights act upon the middle of the truss with an energy equal to $\frac{2}{7} + \frac{4}{7} + \frac{6}{7} + \frac{6}{7} + \frac{4}{7} + \frac{2}{7} = \frac{24}{7}$ of one of them, or $\frac{4}{7}$ of the entire weight = 34,285 $\frac{5}{7}$ lbs, then $4 : 7 :: 34,285\frac{5}{7} : 60,000$; or,

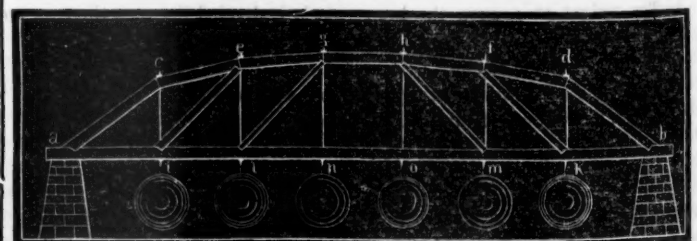
$$2 : 7 :: \frac{34,285\frac{5}{7}}{2} : 60,000 \text{ lbs.}$$

By applying an additional weight of 5,000 lbs. at one fourth of the width of a panel from a , and another weight of 5,000 lbs. at the same distance from b , they will act upon the middle with $\frac{1}{4}$ of their weight equal to 714 $\frac{2}{3}$ lbs.

The whole weight will then be 70,000 lbs.

The pressures at the middle will be $34,285\frac{5}{7} + 714\frac{2}{3} = 35,000$ lbs. and the truss may be considered as uniformly loaded. The horizontal strain will become $2 : 7 :: \frac{35,000}{2} : 61,250$ lbs.

Fig. 46.



bbb. This figure represents a truss of the same span and middle height as in Fig. 45. The other heights (el and ci) are 0.9, and 0.7 the middle height.

With the same vertical pressures as in the last case the horizontal thrust of the braces will be,

$$\begin{aligned} 1 : 1 :: 10,000 : 10,000 \text{ lbs. horizontal thrust brace } gb, \\ .9 : 1 :: 20,000 : 22,222 \text{ " " " } ei, \\ .7 : 1 :: 30,000 : 42,857 \text{ " " " } ca. \end{aligned}$$

The horizontal strain on the bottom chord will

Between a and i and between b and k , 42,857 lbs.

" i " l " " k " m , 65,079 "

" l " m 75,079 "

The oblique thrusts of the braces will be—

1: $\sqrt{2}=1.414$: 10,000 : 14,140 lbs.

.9: $\sqrt{(1^2+.9^2)}=1.345$: 20,000 : 26,900 lbs.

.7: $\sqrt{(1^2+.7^2)}=1.220$: 30,000 : 36,600 "

(To be continued.)

Hannibal and St. Joseph Railroad.

This road commences at Hannibal, Mo., on the west bank of the Mississippi river, a few miles south of Quincy, Ill., and runs thence, via Palmyra and Hudson, to St. Joseph, on the Missouri river. At its eastern terminus a connection is formed with the Quincy and Chicago line by a steamer between Hannibal and Quincy. Upon the completion of the Quincy and Palmyra railroad, a still more direct route will be obtained, as the river terminus of the latter road will be directly opposite that of the Chicago line. The Mississippi terminus of the Peoria and Hannibal railroad, and the Great Western railroad of Illinois is directly opposite Hannibal. Upon the completion of these roads, a connection will be made through the former, with the Peoria and Oquawka, and the Bureau Valley and Rock Island roads; and through the latter with the Toledo and Western road to Toledo, the main line and branch of the Illinois Central, the Lafayette and Indianapolis, Pittsburg, Fort Wayne and Chicago, etc., etc. A direct connection is also made at Hudson with the North Missouri road, running thence to St. Louis; and at St. Joseph with steamers, for Kansas City, Council Bluffs, Nebraska City, Leavenworth, Leecompton, etc.

In the report of this company made to the Board of Public Works of Missouri in December last, the total length of the road is given at 206.8 miles. The higher gradients on the road reach 80, 90, 100, 110 and 122 feet per mile; the grade of 122 feet extends over .05 of a mile.

The capital stock authorized by the charter is 50,000 shares of \$100 each. The whole amount taken is 19,630 shares—upon which there has been paid in cash upon 10,980 shares, \$336,061 20; in county bonds \$82,000; 3,510 shares have been issued to contractors, and 3,140 shares to the Fiscal agency to be applied in settlement with the contractors—leaving to be paid, when assessed and called for, \$879,938 80.

The lands granted by Congress to the State of Missouri to aid in the construction of this road amount to about 600,000 acres. These lands have been mortgaged to secure the payment of bonds to the amount of \$5,000,000. These bonds are dated April 1, 1856, and are payable July 1, 1881, bearing 7 per cent. interest, payable semi-annually. These bonds were sold at a discount of \$1,649,000—the whole net proceeds being \$3,351,000. The interest to be paid by the company on these bonds is \$350,000 per annum.

The company has also authorized a further issue of its own bonds to the amount of \$1,500,000, secured by a second mortgage upon these lands, dated July 1, 1858, and upon the road and its appurtenances. Of these bonds, 757 have been issued, of which 447 have been sold, netting to the company \$268,200—the discount being \$178,800. The balance is to be applied in settlement with the contractors.

The whole number of State bonds authorized and issued to this company is 3,000—upon which the discount and commissions amount to \$567,301.94, the whole amount of net proceeds being \$2,432,698 06.

RECAPITULATION

Cash paid on stock subscriptions.....	\$336,061 20
" proceeds of land bonds.....	3,351,000 00
" " convertible bonds.....	268,200 00
" " State bonds.....	2,432,698 06
	<hr/> \$6,387,959 26

Discount, commission and exchange—

On State bonds.....	\$567,301 94
On land bonds.....	1,649,000 00
On convertible bonds.....	178,800 00
	<hr/> \$2,395,101 94

Whole number of shares taken 19,630.....	\$1,963,000 00
Received in cash upon 10,980.....	\$336,061 20
In county bonds upon 2,000.....	82,000 00
Issued to contractors 3,510.....	351,000 00
Issued to Fiscal agency 3,140.....	314,000 00
	<hr/> \$1,083,061 20

Amount uncollected.....	\$879,938 80
Interest on 3,000 State bonds.....	\$180,000 00
" 5,000 land bonds.....	350,000 00
" 447 convertible bonds.....	31,290 00
" 11 plain bonds.....	770 00
State sinking fund on 20 years' bonds.....	37,500 00
" " " 30 " ".....	22,500 00
	<hr/> \$622,060 00

GENERAL STATEMENT.

Receipts:

From stockholders.....	\$1,083,061 20
" State of Missouri in bonds.....	3,000,000 00
" company mortgage bonds.....	3,550,000 00
" plain bonds.....	11,000 00
" operating account.....	14,679 98
" land, rents, damages, etc.....	964 10
	<hr/> \$7,659,705 28

Expenditures:

For engineering.....	\$177,518 94
" interest, discount, exchange, etc.....	2,006,260 45
" depot grounds.....	42,255 06
" land department.....	43,007 44
" construction.....	4,209,092 58
" depot building.....	90,102 04
" sinking fund on State bonds.....	1,900 00
" fencing.....	6,271 41
" right of way, land damages, etc.....	54,061 55
" equipment.....	291,312 83
" expenses and contingencies.....	244,144 87

County bonds in treasury.....	\$20,000 00
Cash in treasury.....	109,780 23
Balance Fiscal agency account.....	357,093 76
Balance contractors.....	6,939 12
	<hr/> 493,813 11
	<hr/> \$7,659,705 28

OFFICERS.

J. W. BROOKS, Chairman of the board, and of the fiscal agency.

R. S. WATSON, Treasurer of the fiscal agency.

C. D. APPLETON, Secretary of the fiscal agency, and clerk of the board.

J. L. LATHROP, Secretary and Treasurer of the company.

JOSIAH HUNT, Chief Engineer, and Auditor.

J. T. K. HAYWOOD, General agent of the Company, and commissioner of land department.

WM. CARSON, Secretary of the land department.

Memphis and Charleston Railroad.

The Memphis Appeal furnishes the following in relation to this road and its Southern and Eastern connections:

The road has contracted for eleven new locomotives, twelve first class and five second class passenger cars, four baggage and mail cars, and eight through baggage-cars, all of which are now coming on the road, preparatory to running the double daily train on the 1st of July next. The most approved night-sleeping cars have been contracted for, and will be delivered and put on the road on the 1st of July next. The company have already commenced letting out permanent stone culverts, and filling in their trestle-work, in order that the road shall finally be a solid road-bed from one end to the other, and capable of as high a rate of speed as is obtained on any first-class road in this or any other country.

On and after the 1st of June next two daily trains will leave this city on this road. Arrangements have been perfected to put on a double daily train upon the Great Southern mail line between New Orleans and New York, via Grand Junction and the Memphis and Charleston railroad, through East Tennessee and Virginia, on the first day of June next, without fail. The convention of the line meets at Chattanooga, May 2, to perfect the schedule for this purpose. The Cleveland branch will be finished by or before that time, taking out one stop, reducing the distance twenty-eight miles, and saving several hours' time. The Mississippi Central is now laying track rapidly, and will every week reduce the staging till the connection is closed between Grand Junction and New Orleans, which will be done certainly by November or December next. By the same time it is confidently believed that the Orange and Alexandria road will be completed from Charlottesville to Lynchburg, thereby saving one hundred and twenty miles more line and three changes. The finishing of these cut-offs, which will be done this year, completes the great Southern mail-line between New Orleans, Memphis and New York, Philadelphia, Baltimore, Washington, Richmond, Charleston, and the entire Atlantic seaboard, by the shortest and most practicable route that a line of road of its length can ever be built. This line will then be reduced to the following distances and time, and will defy all competition, say:

	Miles.
New Orleans to Grand Junction.....	194
Grand Junction to Chattanooga.....	257
Chattanooga to Bristol.....	240
Bristol to Lynchburg.....	204
Lynchburg to Washington.....	174

Total..... 1,269
Making the distance from New Orleans to Washington city only 1,269 miles, which, at twenty miles per hour, (certainly moderate speed for good roads,) will only require *sixty-four hours*! The distance between Memphis and Washington will be reduced to 929 miles, which, at the same rate per mile, will be run in less than forty-eight hours.

The earnings of the Memphis and Charleston road for the month of March were as follows:—From passengers, \$58,318; freight, \$42,657; express, \$1,651; mails, \$4,597; total, \$107,225. The expenses for the month were \$45,000, leaving a net profit of \$62,217. This shows an increase on the business of the road for the last nine months, from July 1 to April 1, of \$1,015,000, and a net profit of \$650,000—a handsome show for a road costing with its equipments less than \$8,500,000.

Memphis, Clarksville and Louisville R. R.

We learn from the Memphis *Avalanche*, that track laying has been commenced on this road between Clarksville and the tunnel. The iron has been laid down five miles south of Bowling Green, and by the 1st of October the calculation is that the rails will meet at the tunnel, with the exception of which the entire track through will be completed.

Journal of Railroad Law.

LIABILITY OF RAILROAD COMPANY FOR CONSEQUENCES OF STRIKE AMONG ITS EMPLOYEES.

About the 19th of June 1864, one Blackstock delivered a quantity of potatoes to the New York and Erie Railroad Company, at Hornelsville and vicinity, to be carried to New York. The potatoes were not delivered at New York until about the 10th of July following. They were then found to be decayed and rotten, resulting from their having been kept too long during hot weather in the packages in which they were put up to be forwarded. In the usual course of business on the line of the New York and Erie railroad they would have gone through in three or four days, instead of which they were detained eighteen or twenty.

Blackstock sued the company for the damages thus sustained. In defence they showed that the delay was owing to a strike on the part of the engineers, and their refusal, for a period of about two weeks, to work. It appeared that the company had adopted a new rule for the management of the road, which was beneficial and salutary in its operation as respects the public, but gave offence to the engineers employed on the road, so much so that one hundred and forty out of one hundred and sixty-eight engineers in the employment of the company, stopped work, and thus for about a fortnight the regular running of the trains was prevented. The defendants did all in their power to resume running as soon as possible.

The New York Superior Court before which the cause was argued on appeal, held this was not a defence to the action, but the company were liable for their failure to carry the potatoes promptly. The following is an abstract of the reasons assigned by the court.

WOODRUFF J.—after citing and explaining some authorities to the general rule, that in respect to the time of delivering goods a common carrier is only bound to use due diligence; and is not liable for delays occurring without his fault.

The liability of the master for a neglect of duty by the servant exists independently of the question whether there is any fault in the master himself. True, the master is sometimes held liable for the employment of an improper or unskilful servant, but he is often liable when no blame attaches to himself personally. And, for the same reason, he may not excuse himself for a failure to perform a duty which he owes to third persons, by showing that his servant, who was charged with its performance, neglected or refused to do it. The master, assuming to perform the duty, assumed also the hazard of the competency and fidelity of the servants whom he employs.

The same rule must be applied to corporations. Their operations are, necessarily, conducted by the instrumentality of agents, and to say that the want of fidelity on the part of their servants excuses them from the performance of any duty which they owe to third persons, would be practically, to exempt them from any negligence, or any misfeasance, which was not the immediate or necessary consequence of a corporate act.

The present case is, undoubtedly, one of some hardship. It cannot, for a moment, be claimed that a combination, resulting in a refusal to work, by one hundred and forty out of one hundred and sixty-eight men of skill, whose services were indispensable to the conduct of the defendants business, ought to have been foreseen, when there was

no just cause for such a refusal: and it was probably impossible by any ordinary means to have supplied their places on the day on which their refusal took effect; indeed, on so short a notice as the defendants received, it may be regarded as quite impossible. Nevertheless we must regard the hazard of such an occurrence as resting upon the employers. They alone had it in their power to secure, by proper contracts, indemnity against the consequences of misconduct by the employee. The owner of goods has no control, or right of interference in the matter, and we perceive no ground on which to relieve the defendants from the hazard to which the nature of their business, and the vast extent to which it involves the employment of assistants, necessarily subject them. And although they are, in a degree, placed within the power of extensive combinations among their servants, that, we think, furnishes no legal reasons for visiting the consequence upon third persons. Practically, the defendants in such circumstances may suffer by the misconduct of their servants, without redress, but the law imposes no such hardships, on the contrary it will hold the unfaithful servant liable for the direct and immediate consequences of his own fault, and this will, so far as the law can do so, give to the master indemnity.

It ought not to be doubted, and probably would not be doubted, that if, by the negligence of a single engineer in charge of a train, or by his perverse refusal to perform his duty, his train was unnecessarily detained, the company would be liable for the delay. When the delay is said to be excused if it happen without their "fault," the term is not used as imputing personal blame, but it means without fault on their part, in their servants or otherwise.

If this be so it is difficult to perceive how, in principle the rule of liability is affected by increasing the number of servants who are guilty.

An individual carrier may be so conducting his business, that it is only necessary for him to employ one servant to drive one of his wagons; suppose that servant, when at a distance on his journey, abandons the wagon, and days elapse before the carrier hears of its non-arrival, or learns the cause. In such case, assuming that there was no want of care or judgment in selecting his servant, the delay was as to the master personally, without his fault, and in a sense unavoidable, and yet he cannot be held excused. The fidelity of the servant was at his risk,—the fault of his servant is, in a legal sense, his fault.

We cannot think the rule would be otherwise if his business require him to employ a hundred servants, and they all prove unfaithful; such a case is, of course extraordinary, and may create a hardship, but we do not perceive that any new rule is to be prescribed for that reason. If it may be, what number of servants must combine to call for its application? No answer to this question suggest itself to our minds.

We apprehend the rule then to be that the causes of delay, which will excuse a carrier from the performance of his duty to carry within the usual or ordinary period required for the transportation he undertakes, must be those only which occur without his fault, or the fault of his agents, servants or employees.

And a hinderance caused by the tortious act of

third persons, over whom the carrier has no control, and to whom he stands in no relation involving responsibility for their acts or defaults, will excuse his delay, according to the cases above referred to. Unless then the defendants were in the present case hindered in transporting the goods, without their fault, or that of their agents, or servants, they are liable in this action.

Their answer in terms avers that the delay was caused by the wrongful refusal of their engineers, agents and employees, to perform their duty, or to obey the defendants just and necessary rules, etc. And the referee has found that the delay was occasioned by a strike of the defendants engineers, and their refusal to work.

If the views above expressed are correct, and we do not doubt that they are, then upon this finding, and this statement in the answer, the defendants are liable.

Ashtabula and New Lisbon Railroad.

We learn from the Youngstown Register, that the Board of directors of this company, recently in session at Canfield, Ohio, have decided to resume the prosecution of the work, from that place to the Pittsburg, Fort Wayne and Chicago road immediately, and finish the grading and have the road-bed ready for the iron by fall; and to have it ironed and in running order as soon thereafter as it can be done. A resolution was passed to apply all the stock subscribed in Canfield and Greene townships to accomplish the grading, and there is probably enough subscribed to do it, if it shall all be promptly paid up. Arrangements, we understand, are in progress, to obtain the iron, and have it in readiness as soon as the grading is finished. Efforts will also be made to construct the road north to Niles as rapidly as possible.

Weston and Atchison Railroad.

The St. Louis Republican states that a company was organized a few weeks since, under the general railroad law, styled "The Weston and Atchison railroad company," for the purpose of building a road on the most direct route connecting with the Atchison and St. Joseph road.

Pennsylvania Central Railroad.

The Board of directors of this road have declared a dividend of three per cent. on the capital stock of the company, clear of State tax, payable on and after the 15th of May next.

Railway Premium for a Steam Plow.

There being already, at the discretion of the Agricultural Society of Illinois, a premium of \$3,000 for the best practical and acceptable Steam Plow, the Executive committee of the Illinois Central railroad have added \$1,500 more, as follows:

Resolved, That the Central Railroad company offer \$1,500 as a premium for the best steam engine for plowing and other farm work; the simplicity and economy of its construction, and its practicability of application to farm uses shall be such that it can successfully compete with animal power for farm purposes; the award to be made by the Executive committee of the State Agricultural Society, in connection with three scientific machinists to be selected by that body. Before any party shall claim the payment of said award, he shall exhibit the practical working of said engine at three points on the line of the Illinois Central railroad, to be designated by the Vice President of the company; the said company agreeing to transport said engine to or from such points, free of expense to said party.

Railroad Bonds.

NAMES OF COMPANIES. (The following quotations are at interest.)	Amount of Loan.	Description of Bonds.	Rate Int.	Interest payable.	Where payable.	Due.	Offered.	Asked.
Alabama and Tennessee River	\$338,000	1st mortgage, convertible	7	1st Jan. 1st July	N.Y.	1872	85	
Buffalo and State Line	500,000	Do. inconvertible	7	April, October	"	1866	90	96
Bellefontaine and Indiana	600,000	Do. convertible	7	Jan'y, July	"	1866	75	
Do. do.	200,000	Real estate, convertible	7	Jan'y, July	"	1858		
Do. do.	200,000	Income, guar. Cl. Col. & Cin.	7	Feb'y, August	"	1859		
Central Ohio	1,250,000	1st mort. conv. east. sec.	7	Divers	"	1861-64	60	70
Do. do.	800,000	2d do. inconvertible	7	March, Sept.	"	1866	40	42
Cincinnati, Hamilton, and Dayton	500,000	1st mortgage inconvertible	7	20 Jan. 20 July	"	1867	94	96
Do. do.	465,000	2d do. do.	7	May, Novemb.	"	1880	82	82½
Cincinnati and Marietta	2,500,000	1st mortgage, conv. till 1862	7	Jan'y, July	"	1868		
Cincinnati, Wilmington, and Zanesville	1,300,000	Do. convertible	7	May, Novemb.	"	1862		
Cleveland, Painesville, and Ashtabula	567,000	Do. inconvertible	7	Feb'y, August	"	1861	97	100
Cleveland and Pittsburgh	800,000	Do. convertible	7	Feb'y, August	"	1860	65	70
Do. do.	1,200,000	Do. on branches	7	March, Sept.	"	1873	60	67
Cleveland and Toledo	525,000	Do. inconvertible	7	Feb'y, August	"	1863	75	80
Chicago and Mississippi	800,000	Do. conv. till 1857	7	April, October	"	1862-72	30	50
Do. do.	1,200,000	Do. inconvertible	7	April, October	"	1862-72	30	50
Covington and Lexington	400,000	Do. do.	6	April, October	"	1867	60	65
Do. do.	1,000,000	2d mortgage, convertible	7	March, Sept.	"	1863	47	55
Delaware, Lackawanna, and Western	1,500,000	1st mortgage, do.	7	April, October	"	1875	87	89
Florida Freehold	1,800,000	Do. not convertible	7	March, Sept.	"	1891	77	78
Fort Wayne and Chicago	1,250,000	Do. conv. till 1863	7	Jan'y, July	"	1873	65	72½
Gaule and Chicago	2,000,000	Do. inconvertible	7	Feb'y, August	"	1863	93	94
Do. do.	2,000,000	2d mortgage, do.	7	May, Novemb.	"	1875	90½	92
Great Western (Illinois)	1,000,000	1st mortgage, do.	7	April, October	"	1868		
Green Bay, Milwaukee, and Chicago	400,000	Do. convertible	10	10 April, 10 Oct.	"	1863	84	88
Jeffersonville	300,000	Do. 2d sec. inconv.	7	April, October	"	1873		
Indiana Central	600,000	Do. convertible	7	May, Novemb.	"	1866		
Indianapolis and Bellefontaine	450,000	Do. do.	7	Jan'y, July	"	1860-61	70	80
Indianapolis & Cincinnati (for Lawb. & U. M.)	500,000	Do. conv. till 1857	7	March, Sept.	"	1864	87	90
La Crosse and Milwaukee	950,000	1st mort. 1st sec. conv. till 1864	7	May, Novemb.	"	1874	75	85
Lake Erie, Wabash, and St. Louis	3,400,000	1st mortgage, conv. till 1859	7	Feb'y, August	"	1865	71	73
Little Miami	1,500,000	Do. inconv.	6	2 May, 2 Nov.	"	1883	83	85
Michigan Central	1,000,000	No mortgage, convertible	8	April, October	Boat.	1860	95	97
Do. do.	600,000	Do. do.	8	March, Sept.	"	1869	92	93
Milwaukee and Mississippi	600,000	1st mort. 1st sec. conv. till 1857	8	Jan'y, July	N.Y.	1862		80
Do. do.	550,000	Do. 2d do. 1858	8	April, October	"	1863		77½
Do. do.	1,250,000	Do. 3d do. 1860	8	April, Decemb.	"	1877	67	72½
New Albany and Salem	500,000	Do. 1st section	10	April, October	"	1868-62		90
Do. do.	2,325,000	Do. oth. sec. con. till 1858	8	May, Novemb.	"	1864-75		75
Northern Cross	1,200,000	1st mortgage, convertible	8	Jan'y, July	"	1867	70	75
Ohio and Indiana	1,000,000	Do. do.	7	Feb'y, August	"	1865-66	70	77½
Ohio and Pennsylvania	1,750,000	Do. do.	7	Jan'y, July	"	1872	67	62
Do. do.	2,000,000	Income, convertible	7	April, October	Phila.	1880	100½	101½
Pennsylvania (Central)	5,000,000	1st mortgage, conv. till 1860	6	Jan'y, July	N.Y.	1876		75
Racine and Mississippi	880,000	Do. conv. sink'g f'd	7	Feb'y, August	"	1861		
St. Louis and Hocking Valley	300,000	Do. 1st sec. conv.	7	May, Novemb.	"	1865		
St. Louis and Indiana	1,500,000	Do. convertible	7	Jan'y, July	"	1866		
St. Louis and Indianapolis	600,000	Do. do.	7	March, Sept.	"	1866		
St. Louis and Alton	1,000,000	Do. do.	7	Feb'y, August	"	1867-72	68	72

NAMES OF COMPANIES. (The following quotations include the accrued interest.)	Amount of Loan.	Description of Bonds.	Rate Int.	Interest payable.	Where payable.	Due.	Offered.	Asked.
Baltimore and Ohio	1,128,500	Mortgage	6	Jan'y, July	Balt.	1875	85	86
Chicago and Rock Island	2,000,000	1st mortgage, conv. till 1858	7	10 Jan. 10 July	N.Y.	1870	94	96
Chicago and Rock Island	3,000,000	1st mortgage	7	May, Novemb.	"	1867	95	97
Do. do.	4,000,000	2d mortgage, convertible	7	March, Sept.	"	1869	80½	81
Do. do.	6,000,000	3d mortgage	7	March, Sept.	"	1883	69½	70
Do. do.	6,000,000	4th mortgage not convertible	7	April, October	"	1880	47½	43½
Do. do.	4,000,000	Not conv. Sink Fund, \$420,000	7	Feb'y, August	"	1875	20	23
Do. do.	4,351,000	Convertible. Inscription	7	Feb'y, August	"	1871	20	21
Do. do.	3,500,000	Convertible	7	Jan'y, July	"	1862	20	22
Indian River	4,000,000	1st mortgage, Inscription	7	Feb'y, August	"	1869-70	103	104
Do. do.	2,000,000	2d do. do.	7	16 June, 16 Dec	"	1860	95	95½
Do. do.	3,000,000	3d do. convertible	7	May, Novemb.	"	1870	79½	77½
Illinois Central	17,000,000	Mortgage, inconvertible	7	April, October	"	1870	88½	90
Do. (Free Land)	3,000,000	Mfg 345,000 acrs-priv. 7 shar's	7	March, Sept.	"	1860	95	95½
Michigan Southern	1,000,000	1st mortgage, inconvertible	7	May, Novemb.	"	1860	84	87
New York and Harlem	1,200,000	Do. do.	7	May, Novemb.	"	1861-72	94½	95
New York and New Haven	750,000	No mortgage, do.	7	June, Decemb.	"	1865-67	96	99
New Haven and Hartford	1,000,000	1st mortgage, do.	6	Jan'y, July	"	1873	94	94½
Northern Indiana	1,000,000	Do. do.	7	Feb'y, August	"	1891	81	83
Do. Goshen Branch	1,500,000	Do. do.	7	Feb'y, August	"	1868	71½	72
New York Central	8,287,000	No mortgage, do.	6	May, Novemb.	"	1883	94	95
Do. do.	3,000,000	Conv. m'g conv. from June 57-59	7	15 June, 15 Dec	"	1864	104	104½
Panama, 1st issue	900,000	Convertible till 1856	7	Jan'y, July	"	1866	114	
Do. 2d do	1,470,000	Do. till 1858	7	Jan'y, July	"	1866	90	91
Reading	1,500,000	Mortgage, inconvertible	6	Jan'y, July	Phila.	1860		
Do. do.	3,468,000	Do. convertible	6	Jan'y, July	"	1870	85	85½
Do. do.		Do. inconvertible	6	April, October	"	1886	76	76½

CITY SECURITIES.		Int't payable,	Off'd	Ask.	CITY SECURITIES		Int't payable,	Off'd	Ask.
New York, 5 per ct.	1868-60	<div>May, August, and November.</div>	98½	99	Milwaukee, 7 per ct. coup.	X	Divers	45	70
Do. 5 do.	1870-75		93	94½	New Orleans, 6 per ct. cp. R.R. X	Do.	75	80	
Do. 5 do.	1883		103	103½	N. Orleans, 6 per ct. cp. municip. X	Jan'y, July	87½	91	
Do. 5 do.	1890-98		92	93½	Philadelphia, 6 per ct.	Jan'y, July	100	100½	
Albany, 6 per ct. coup.	1871-81 X	Feb'y, August.	99	101	Pittsburgh, 6 per ct. coup.	X	Divers	46	50
Albany, 6 per ct. coup.	1873-81 X	Jan'y, July	50	60	Quincy, 8 per ct. coup.	1868 X	Jan'y, July	67	75
Baltimore, 6 per ct.	1879-90	Quarterly	97½	100	Racine, 7 per ct. coup.	1873 X	10. Feb'y, Aug	80	80
Boston, 6 per ct. coup.	X	April	101	102	Rochester, 6 per cent. coup.	X	Divers	90	97½
Brooklyn, 6 per ct. coup.	X	Jan'y, July	102½	103	St. Louis, 6 per ct. coup.	Long X	Do.	84	85
Charl'ton, 7 per ct. cp. W.W. 1879	X	Oct.	100	103	Do. do. Municipal	X	Do.	86	87
Cincinnati, 6 per ct. coup.	X	Divers	92½	95	Sacramento, 10 p. ct. cp. 1862-74	X	Do.	35	40
Chicago, 6 per ct. coup.	1873-77 X	Jan'y, July	95	96	S. Francisco, 7 p. ct. cp. 1865, pay. N.Y.	X	May, Novemb.	60	70
Do. 7 per ct. coup.	1880 X	Jan'y, July	97½	99½	Do. 10 p. ct. cp.	1871 X	Do. do.	90	91
Detroit, 7 per ct. cp. W.W. 1873-78	X	Feb'y, August.	100	102	Do. 10 p. ct. pay. N.Y.	X	Jan'y, July	60	61
Dubuque, 6 per ct. cp.	Long X	March, Sept.	99	100	Do. 6 per ct. pay. N.Y. 1875	X	Do. do.	56	61
Evansville, 6 p. ct. cp. W.W. 1877	X	Jan'y, July	99	101	Wheating, 6 per ct. coup.	X	Divers	60	60
Evansville, 6 per ct. cp.	1880-83 X	Divers	72	72½	Do. 6 p. ct. cp. Mun. 1874	X	March, Sept.	80	81½
Memphis, 6 per ct. coup.	1882 X	Jan'y July	64	70	X	X	April, October		

Cincinnati Stock Sales.

By KIRK & CHEEVER.

For the week ending April 25, 1859.

BONDS.	Per cent.
Little Miami, 1st Mort.	6s. 84½ and int.
Covington and Lexington, 1st Mortgage	6s.
Do. do. 2d do.	7s. 50
Do. do. Income	10s.
Ohio & Miss., E. D., Construction	7s.
Cinc., Ham. and Dayton, 1st Mortgage	7s.
Do. do. 2d do.	7s. 83
Indianap. & Cincinnati, do. do.	7s. 83½

STOCKS.

Cincinnati, Hamilton & Dayton	66
Columbus and Xenia	88
Indianapolis & Cincinnati	60
Little Miami	90
Ohio and Mississippi (E. D.)	3

Railroad Earnings.

Traffic of the Great Western Railroad, for the week ending April 15, 1859.

Passengers	\$23,020 97
Freight and live stock	12,869 37½
Mails and sundries	1,540 08½

Total.....\$36,930 40

Corresponding week of last year....\$53,483 84

The following is a statement of the earnings and expenses of the Connecticut River Railroad in the first quarter of 1858 and 1859:—

	1858.	1859.
Total receipts	\$41,501	\$49,486
Operating expenses	23,765	27,732

Net earnings.....\$17,736 \$21,754

Net gain in 1859.....\$4,018

The receipts of the Grand Trunk Railway of Canada for the week ending April 9, were.....\$49,068 19
Week ending April 10, 1858.....47,839 08

Increase.....\$1,229 11

Total traffic from July 1st.....\$1,769,117 22

Same period last year.....1,847,962 65

Decrease.....\$78,845 33

The following is a comparative statement of the earnings of the Northern Central Railroad Company for the month of March.

	1859.	1858.	Increase.
Passengers	\$22,820 88	\$14,551 01	\$8,269 87
Freight	53,491 73	50,425 67	3,066 06
Mail	2,425 00	1,487 50	937 50
Sundries	140 62		140 62
	\$78,878 23	\$66,464 18	\$12,414 05

Wilmington and Weldon Railroad.

The following is the semi-annual statement of this Company for six months ending March 31, 1859:

Gross receipts	\$256,845 48
Expenditures	106,482 77
Net receipts	\$150,362 71
Less interest on debt	\$30,000
" Sinking fund.	25,000
	55,000 00
	\$95,362 71
Less semi-annual div. 4 per cent.	53,200 00

Leaving a surplus of.....\$42,162 71

The receipts for corresponding period of last year, were.....\$237,675 01
And the expenditures.....113,697 99

Leaving net receipts.....\$123,977 02

—net gain, \$26,385 69.

Virginia and Tennessee Railroad.

This road is 204 miles in length, and cost about \$7,000,000. In 1850 the taxable value of the land in the counties through which it passes, as taken from the census, was \$28,952,627; and in 1856

the State assessment makes it \$58,917,229; or an increase in six years of \$25,365,558. This sudden increase is alone the result of an internal improvement which has cost only \$7,000,000.

American Railroad Journal.

Saturday, April 30, 1859.

Competition Between the Four Great Lines.

The recent compact between the four great railroads, has given place to an excessive competition for a business (which, unfortunately, at the present time is a very meagre one,)—to command the traffic, without any reference to the cost of transportation. The contest is for *freight* between New York and distant points in the west. Rates for passenger and local traffic of all kinds, are at present well maintained; so that the contest, as we shall hereafter show, is not so entirely destructive to the income of the several roads, as might, at first sight, be imagined.

How this matter is to end, we do not now see. We suppose it may be taken for granted that the position now assumed by the New York Central will not be receded from. This position is, as we understand it, that this company will not enter into any arrangement or agreement whereby it precludes itself from transporting merchandise over its line between New York and any points in the west, which may be said to be common to the four lines, at the same rates charged between the cities of Philadelphia and Baltimore and the same points, over their respective roads. Whatever may have been the prior agreements and understandings on this subject, and whoever may have been at fault in their rupture, the issue now presented seems reduced to the simple terms stated.

We certainly do not desire to be partial to any of the interests or parties to the present embittered controversy, although it is always difficult to escape from leaning in favor of one's neighbors, and of those with whom one comes in daily contact. But we will try to state the grounds of the action of the Central fairly, as they put it out to the public. The managers of this road deny that the Philadelphia and Baltimore, or their respective railroads as avenues of trade possess, any advantage of geographical position over New York, or its railroad for the trade of the west—They claim that two elements enter into the cost of transportation—lineal distance, and the character of the route. Practically, the shorter road is often the longer of the two. Over a level road an engine will take twice the number of cars as over a one having inclinations of 20 foot to the mile. Now we know that the disadvantages, in an economical point of view, of heavy grades are often overrated; still they are positive, and capable of being pretty accurately estimated. From the advantages, therefore, that Philadelphia and Baltimore possess on the score of proximity to the West, should be deducted the inferior character of the routes of their respective railroads. It manifestly cost more to transport merchandise for a distance of two hundred and ninety-eight miles, (the distance between Albany and Buffalo,) over the Baltimore and Ohio and Pennsylvania lines than over their New York rival. The latter has little more to do than to overcome the elevation between Albany and Buffalo. Its western termi-

nus at Buffalo is nearly, if not quite, as high as any point on the whole road. The more southern lines, including the New York and Erie, have the Alleghany Mountains to ascend at elevations of 1,600, 1,900 and 2,600 feet above the sea level, and many hundred feet above their western termini. An estimate of the advantage of position, as measured by lineal distance, should certainly be qualified by a comparison of the character of the routes. Whether the assumed, (by us,) superiority of the New York Central route was taken into consideration in the late compact between the four great companies, we are not informed.

A great advantage claimed by the Central over all the competing lines is in the lesser distance by rail over it, between New York and most of the leading points in the West, than between Philadelphia and Baltimore and the same points. Take Indianapolis, for illustration. The distance between this point and New York is as follows:

	Miles.
New York to Albany by water	150
Albany to Buffalo	298
Buffalo to Toledo by water	275
Toledo to Indianapolis by rail	223

Total

The distance from Philadelphia to the same point, all rail, is as follows:

	Miles.
Philadelphia to Pittsburg	353
Pittsburg to Crestline	187
Crestline to Indianapolis	206
Total	746

The comparative statement shows a difference of 200 miles in favor of Philadelphia. But 425 miles of the N. Y. route is by water, leaving 541 as the railroad portion of the northern route, or 224 miles less than from Philadelphia. The charge for transporting merchandise from New York to Albany is \$1 per ton; from Buffalo to Toledo, the same. Allowing two cents per ton per mile for the railroad portion of the route, the total charge from New York to Indianapolis would be \$12 42 per ton. At the same rate per mile by rail, from Philadelphia to Indianapolis, 746 miles, the cost would be \$14 92 per ton. These rates may not be absolutely correct, but they are approximately so, and are put forth by the Central to show that none of the roads competing for the western trade have an advantage of position over the Central, taking New York and Philadelphia as the points.

Another motive that exerted great influence on the action of the Central, was the representation of the New York merchants. They claimed that the arrangements between the four companies were injurious to their trade. There was undoubtedly great force in their arguments. Had the discrimination been against Philadelphia and Baltimore, we think the merchants of those cities would not have been very quiet under a fancied or real loss of trade. Their respective roads were constructed expressly for the purpose of increasing it. To have them discriminating against it, and in favor of a rival, would have been a little too much for their equanimity. They must judge of New York merchants by a similar standard.

For the reasons stated, we presume the Central will not recede from the position it has taken. It claims to be in a position to maintain itself successfully in the present contest, no matter to what extent it may be carried. We see no solution of

the difficulty, unless New York, Philadelphia, and Baltimore, be placed in the same relations in reference to the western trade—or unless the four companies agree upon a geographical division of territory between them.

It is some comfort, however, to know that the competition now going on is less injurious to the interests of the companies than has generally been supposed, from the noise that has been made about it in the public press. Taking all the lines, we do not believe that one-sixth of the western business going to and from New York, is properly a subject for competition. The total amount of *through* freight traffic on all the lines for 1858, was as follows:

	Through tonnage East.	Through tonnage West.	Receipts tonnage from through freight.
N. Y. Central	\$229,275	\$83,133	\$2,125,726
N. Y. and Erie	157,828	80,271	2,145,324
Pennsylvania	141,265	79,944	1,912,949
Baltimore and Ohio	170,084	54,779	1,678,416
Total	\$698,462	\$298,127	\$7,862,415

The proportion of receipts from through freight to the aggregate from all sources, for the past year, was as follows:

	Total Earnings.	Do, from through fr't.
N. Y. Central	\$6,528,412	\$2,125,726
N. Y. and Erie	5,151,616	2,145,324
Penn.	5,185,330	1,912,949
Balt. and Ohio	4,104,489	1,678,416
Totals	\$20,969,847	\$7,862,415
Total through	7,862,415	

Freight and passengers .. \$13,107,432

Assuming that one-sixth of the through business of the respective routes are a proper subject for competition, the entire prize contended for is about \$1,300,000, or about one-sixteenth part of their entire traffic. In this point of view, although the present competition is sufficiently injurious, it is certainly not so fatal in its results as has been supposed, nor does it threaten to destroy entirely the productiveness of the competing lines.

Location of the Trunk Line of Georgia.

The line of this road has been located from Savannah to Bainbridge on Flint river. The following is a statement of the lengths of the several divisions of the road:

	Miles. Feet.
The distance from Savannah to the Little Satilla river is	72,
From the Little Satilla river to Thomasville	126, 2,240
From Thomasville to Bainbridge (Flint River)	37, 920
Total	236, 3,160

Thus making the distance from Savannah to Bainbridge 236 3-5 miles nearly.

The highest elevation attained on the ridge dividing the waters of Flint and Ocklockonee rivers is 316 feet above tide water at Savannah. The ridge is eight miles east of Bainbridge. Bainbridge is 120 feet above tide water at Savannah, and the surface water of the Flint is 78 feet above the same.

San Antonio and Mexican Gulf Railroad.

This property has been transferred to the new purchasers, Messrs. J. A. Paschal, of San Antonio, J. O. Wheeler, of Victoria, and Z. K. Fulton of Lavaca—representing, besides, other parties—and they have promised to finish the road soon to Victoria, and at no distant day to San Antonio.

Savannah and Gulf Railroad.

This work is now completed to the village of Blacksley, ninety-three miles from Savannah. The road is graded for the iron some fifteen miles further on. The *Republican* thinks that the next crop of Brooks, Lowndes, Clinch, Echols and Berrien, if not Thomas, will be sent to market over this road.

We invite attention to the advertisement of Messrs. TAW & BEERS, in another column. They are the sole manufacturers of "Taw's Railroad Car Grease," and "Hinckley's Engine and Burning Oils." We have received a circular, giving a list of some twenty Companies now using their car grease—together with testimonials from the superintendents of several prominent roads at the South and West—all of whom concur in pronouncing it both economical and durable. The superintendent of the N. A. & S. R. R., says, he saves 25 per cent. on first cost, and fully 10 per cent. on stopping and wastage of the boxes. The superintendent of the M. & C. R. R. has been using the soft white grease entirely on passenger and freight cars, and finds it an excellent and cheap lubricator. The C. & S. C. company, have used the yellow grease on their road for six or eight years, and consider it the best of anything they have tried. The Master of Machinery on this road states that he has run boxes packed with it over a month at a time without heating or gumming in the least. This celebrated grease has been in use upwards of ten years, by our railroad and coal companies, mill owners, carriage builders, etc. Address Messrs. TAW & BEERS, 18 South Water street, Philadelphia, Penn.

Messrs. JAMES JEFFRIES & SONS, still continue the manufacture of *Locomotive, Car and Tank Springs* at their old stand, rear of Girard House, Philadelphia. In their advertisement in another column, reference is made to some of our most prominent railroad officers, and locomotive and car builders, as well as to all the roads where their springs are in use. Companies wishing to try their durability and elasticity, will be furnished with a set, by stating the length, width, curve over all, and the weight which they are to bear. Address Messrs. JAMES JEFFRIES & SONS, Philadelphia, Pa.

The principal "Engineer's, Architect and Draftsmen's Stationery Emporium" is to be found at No. 107 Chestnut street, Philadelphia. At this establishment pretty much everything required by the engineer in his office, by the merchant in his counting room, or by the editor in his sanctum, can be obtained at the shortest notice, and on the most reasonable terms. An advertisement, enumerating a few of the articles, may be found in its appropriate place. Orders from a distance are promptly filled, the goods packed with care, and forwarded to any part of country. Address JOSEPH HUFFY, Esq., No. 107 Chestnut street, Philadelphia.

Amboy, Lansing and Traverse Bay Railroad.

We learn that the contract for building this road between Jonesville and Saginaw—including a portion of the route between Lansing and Owosso—has been taken by Messrs. Beckel and Jones. Mr. Innis still continues as chief engineer of the whole route. The work is to be commenced immediately, and completed in good running order on or before the 1st day of December next.

Albany and Susquehanna Railroad

This road is to connect with the New York and Erie at Binghamton. Work on the line was resumed last fall. Fifty-five miles were placed under contract, and the work of grading has been prosecuted on the heavier sections of the work during the past winter. Six sections, comprising about one-half the line under contract, are being worked with a daily average force of 300 men. The road is being built without any outside influence, by the inhabitants along the line; the usual appliances for getting up an impression in favor of the line have not been resorted to by the present management. The directors are mostly plain country men, who have embarked in the enterprise for the benefit of the now isolated section through which it passes. They mean to build such a line as will answer the demands of the local traffic, and accommodate such through trade as its connections with the Eastern and Western lines will bring to it.

Osage Valley and Southern Kansas R. R.

A meeting of the stockholders of this company was held in Chinton, Henry Co., Mo., on the 4th inst., at which a board of directors was elected. The board subsequently met and elected the following officers: Col. A. M. Tutt, President; Col. James M. Cogswell, Vice President; D. G. Boone, Secretary; John G. Thornton, Auditor; Dr. J. A. Rogers, Treasurer; W. A. Ela, Chief Engineer and General Land Agent.

This road will commence somewhere between Tipton and Otterville, on the Pacific road; and run thence through the counties of Morgan, Benton, Henry and Bates, to the western borders of the State. The survey has already been commenced; and it is contemplated to put the road under contract during the coming fall. This route leads directly to the best part of southern Kansas. The company are sanguine, from the liberal spirit already manifested, that stock enough will be subscribed in lands to grade the road through the State to its place of termination in Kansas.

Knightstown and Shelbyville Railroad.

We understand that this work is going forward and will soon be vigorously prosecuted to an early completion. Some delays have impeded its progress, owing to the failure of receiving the iron as was contemplated and contracted for. The company determining not to delay the work longer, have purchased a portion of the iron outside of the original contract, which is now being delivered and have assurance that the balance will be supplied in a few days, so that further detention will not occur. The bridge for Little Blue River is nearly ready to be placed upon the abutments. The contract for laying the entire line is in the hands of Messrs. Prindle & Robinson, of North Madison, aided by Samuel Higgin, of Columbus, bridge builder.

Cincinnati, Wilmington and Zanesville R. R.

A decree for the foreclosure of the mortgages on this road was taken in the U. S. Circuit Court in Cincinnati, with an accompanying argument, between all parties in interest, that all proceedings under the decree should be delayed for the term of three years and a half. This stay of proceedings under foreclosure is for the purpose of giving the stockholding organization the opportunity

to build the Glendale extension of the road and thereby secure the means to resume payment on the bonded indebtedness of the Cincinnati, Wilmington and Zanesville company. The Board is confident of being able to complete the extension within the next year, and to realize such returns as shall secure the entire line of road to the stockholders.

Railroads of Connecticut.

We give on the succeeding pages statements showing the result of the operations of the railroads of Connecticut from the opening of the first road to the present time. The aggregate result may be stated as follows: Total investment, (the cost of the several years being added together,) \$245,377,737; total earnings, \$30,536,182; expenses of operating roads, \$7,732,718; net earnings, \$12,803,464. The per centage of gross earnings to cost has been 12½ per cent.; net, do, 5¼; operating expenses, 7¼.

The operating expenses are increased by the amounts paid by the New York and New Haven, and Hartford and New Haven Railroads, on the lease of the New Haven and Northampton Railroad, which have averaged, since 1849, \$33,193 over the earnings of this road. Toward this excess the Hartford and New Haven Railroad has contributed \$12,000 annually, and the New York and New Haven Railroad, \$21,193 annually. The sum charged annually to expenses has been further increased by the amount paid by the Housatonic Railroad to the Berkshire, the Stockbridge and Pittsfield, and the West Stockbridge Railroads, leased by it, and amounting to the sum of \$845,606, in the aggregate. Three-fourths of this amount has probably been lost to the Housatonic Railroad. The amount now annually paid it for its leased lines, has averaged for nine years past \$74,212. The leases are perpetual, and are the great drawback to the success of the Housatonic road.

RECAPITULATION.

Year.	Length—Miles.	Cost.	Earnings.	Expenses, Net Earnings.
1839	18	\$729,600	\$31,933	\$11,000
1840	95	2,628,592	181,664	76,655
1841	95	3,023,878	246,666	108,076
1842	189	4,340,983	340,436	151,782
1843	169	4,379,615	376,798	169,691
1844	169	4,038,206	479,812	206,146
1845	195	5,268,591	553,781	282,833
1846	195	6,422,888	650,794	337,848
1847	195	6,918,418	802,945	433,485
1848	195	7,042,642	922,599	430,017
1849	205	8,334,060	1,010,657	459,237
1850	292	14,591,976	1,825,629	1,002,067
1851	445	16,745,500	2,224,041	1,029,083
1852	495	18,486,373	2,850,535	1,394,122
1853	609	22,456,727	2,791,915	1,604,397
1854	609	23,653,769	3,172,833	1,969,002
1855	641	23,991,265	3,116,672	1,877,622
1856	641	23,946,817	3,186,555	2,010,721
1857	641	24,727,688	3,431,905	2,036,285
1858	641	24,758,549	2,832,090	1,852,254
Total	6,760	\$245,377,737	\$30,536,182	\$17,732,718
				\$12,803,464

RAILROADS IN CONNECTICUT.

Statement showing the cost, earnings, etc., etc., of all the Railroads of Connecticut, from the opening of the first road to the present time.

Name of Road.	Length.	Cost.	Gross receipts.	Current expenses.	Net receipts.	Rec'd from pass'gers.	Rec'd from freight.	Do. Miscellaneous.	Dividend.
1839.									
Hartford and New Haven	18	\$729,606	\$31,933	\$11,500	\$20,433	.....	.....	.....	..
1840.									
Hartford and New Haven	36	\$851,121	\$65,147	\$23,152	\$41,995	.....	.....	.....	..
Norwich and Worcester	59	1,777,471	116,547	52,503	64,014	\$78,889	\$28,232	\$3,844	..
Total	95	\$2,628,592	\$181,664	\$75,655	\$106,009				
1841.									
Hartford and New Haven	36	\$866,336	\$91,305	\$29,270	\$62,035	.....	.....	.....	3
Norwich and Worcester	59	2,157,037	165,261	78,805	76,466	\$99,332	\$52,594	\$3,335	..
Total	95	\$3,023,373	\$246,566	\$108,075	\$138,491				
1842.									
Hartford and New Haven	36	\$960,963	\$90,760	\$30,429	\$60,331	.....	.....	.....	4
Norwich and Worcester	59	2,158,561	157,358	75,195	82,163	\$94,342	\$50,419	\$12,596	..
Housatonic	74	1,221,460	92,317	46,158	46,159	.....	.....	.....	..
Total	169	\$4,340,983	\$340,435	\$151,782	\$188,653				
1843.									
Hartford and New Haven	36	\$969,049	\$89,294	\$32,808	\$56,486	.....	.....	.....	3
Housatonic	74	1,244,600	124,160	87,500	36,669	.....	.....	.....	..
Norwich and Worcester	59	2,166,566	162,335	85,899	76,436	\$95,856	\$51,102	\$15,876	..
Total	169	\$4,379,515	\$375,798	\$206,207	\$169,591				
1844.									
Hartford and New Haven	36	\$1,368,921	\$99,632	\$32,733	\$66,899	.....	.....	.....	4
Housatonic	74	1,398,920	149,506	93,000	56,506	.....	.....	.....	..
Norwich and Worcester	59	2,170,365	230,674	80,412	150,262	\$135,654	\$78,788	\$16,231	3
Total	169	\$4,938,206	\$479,812	\$206,145	\$273,667				
1845.									
Hartford and New Haven	62	\$1,621,720	\$183,834	\$62,712	\$121,122	.....	.....	.....	6
Housatonic	74	1,476,380	164,639	100,000	64,639	.....	.....	.....	..
Norwich and Worcester	59	2,170,491	204,308	89,621	114,687	\$116,201	\$77,665	\$10,441	3
Total	195	\$5,268,591	\$552,781	\$252,333	\$300,448				
1846.									
Hartford and New Haven	62	\$1,690,260	\$228,611	\$89,187	\$139,424	.....	.....	.....	..
Housatonic	74	1,553,840	180,274	180,274	.....	.....	.....	.....	8
Norwich and Worcester	59	2,178,788	241,909	118,387	123,522	\$118,909	\$110,750	\$12,250	..
Total	195	\$5,422,888	\$650,794	\$387,848	\$262,946				
1847.									
Hartford and New Haven	62	\$2,109,865	\$324,725	\$130,426	\$194,299	.....	.....	.....	8
Housatonic	74	1,631,304	243,325	181,626	61,699	\$90,105	\$161,226	\$5,627	8
Norwich and Worcester	59	2,187,249	234,895	141,433	93,462	114,310	108,003	12,582	..
Total	195	\$5,928,418	\$802,945	\$453,485	\$349,460	\$204,415	\$269,229	\$18,209	
1848.									
Hartford and New Haven	72	\$2,354,813	\$430,212	\$145,668	\$284,544	.....	.....	.....	8
Housatonic	74	2,500,000	274,314	181,558	92,756	\$93,322	\$175,047	\$5,933	8
Norwich and Worcester	59	2,187,829	218,073	92,784	125,289	100,271	99,959	17,841	..
Total	205	\$7,042,642	\$922,599	\$420,010	\$502,589	\$193,593	\$225,006	\$23,773	
1849.									
Hartford and New Haven	72	\$2,405,313	\$432,803	\$142,401	\$290,402	.....	.....	.....	8
Housatonic	74	2,500,000	287,184	176,797	110,387	\$111,322	\$165,394	\$10,278	8
Naugatuck	57	1,333,249	54,473	25,170	29,303	22,129	31,146	1,197	..
Norwich and Worcester	59	2,095,508	236,197	114,869	121,328	104,398	114,144	17,654	..
Total	262	\$8,334,060	\$1,010,657	\$459,237	\$551,420	\$237,849	\$310,684	\$29,129	
1850.									
Hartford and New Haven	72	\$2,631,541	\$490,930	\$196,454	\$294,476	.....	.....	.....	10
Housatonic	74	2,500,000	310,063	261,569	48,494	\$126,988	\$170,080	\$12,991	4
Naugatuck	57	1,335,000	230,862	136,273	94,589	94,735	130,259	5,868	..
New Haven and Northampton	27	750,000	76,453	40,000	36,453	.....	.....	.....	..
New London, Willimantic and Palmer	66	1,335,000	80,900	40,700	40,200	54,000	25,400	1,500	4
New York and New Haven	62	3,441,920	378,162	199,748	178,414	354,484	9,649	14,029	7
Norwich and Worcester	59	2,598,514	261,259	126,313	133,946	110,109	134,382	16,766	2½
Total	417	\$14,591,975	\$1,828,629	\$1,002,059	\$826,572	\$740,316	\$469,770	\$51,154	
1851.									
Hartford and New Haven	72	\$2,742,245	\$556,004	\$235,011	\$320,993	.....	.....	.....	10
Housatonic	74	2,500,000	329,041	240,227	88,814	\$130,428	\$183,786	\$14,834	..
Naugatuck	57	1,368,151	190,227	85,287	104,940	72,307	114,052	3,867	..
New Haven and Northampton	55	1,400,000	120,380	50,148	70,232	.....	.....	.....	4
New London, Willimantic and Palmer	66	1,450,000	111,057	56,197	54,860	60,643	37,966	2,448	..
New York and New Haven	62	3,700,000	647,306	388,661	258,645	564,355	71,266	11,685	7
Norwich and Worcester	59	2,585,104	270,049	138,550	131,499	117,606	137,573	14,870	4
Total	445	\$15,745,500	\$2,224,064	\$1,194,081	\$1,029,983	\$945,339	\$543,643	\$47,704	

1852.									
Hartford and New Haven	72	\$2,906,589	\$600,408	\$268,185	\$332,223	\$396,383	\$172,547	\$31,478	10
Housatonic	74	2,500,000	301,166	301,166	.....	94,146	178,894	14,741	..
New Haven and Northampton	55	1,400,000	120,380	50,148	70,232	.....	.....	.....	4
Naugatuck	57	1,409,508	210,984	95,203	115,781	79,641	127,071	4,272	7
New York and New Haven	62	4,800,000	679,653	424,899	254,754	555,215	113,005	11,433	7
New London, Willimantic and Palmer	66	1,511,111	114,410	62,509	51,901	61,609	44,238	8,564	..
New Haven and New London	50	1,362,677	55,978	35,266	20,707	52,512	2,522	989	..
Norwich and Worcester	59	2,596,488	267,561	156,746	110,815	112,933	139,009	15,618	4 1/2
Total	495	\$18,486,373	\$2,350,535	\$1,394,122	\$956,413	\$1,352,439	\$777,286	\$87,047	..
1853.									
Danbury and Norwalk	24	\$369,738	\$48,830	\$28,157	\$20,673	\$28,758	\$17,772	\$2,300	6
Hartford and New Haven	72	3,164,833	639,528	304,180	335,348	405,173	200,154	34,201	10
Hartford, Providence and Fishkill	50	3,008,214	98,941	40,251	58,690	.....	.....	.....	..
Housatonic	74	2,507,819	324,990	320,359	4,631	103,861	207,402	13,727	7
Naugatuck	57	1,530,907	246,687	122,059	124,628	91,467	150,686	4,534	8
New Haven and Northampton	55	1,400,000	147,606	51,457	96,149	.....	.....	.....	4
New Haven and New London	50	1,375,912	96,138	56,463	39,675	88,000	6,000	2,138	..
New York and New Haven	62	4,978,487	739,434	437,826	301,608	610,550	108,877	20,007	..
New London, Willimantic and Palmer	66	1,524,329	128,715	73,821	54,894	64,097	57,164	7,454	..
Norwich and Worcester	59	2,596,488	321,046	169,824	151,222	138,294	159,326	23,426	4
Total	569	\$22,456,727	\$2,791,915	\$1,604,397	\$1,187,518	\$1,530,200	\$907,381	\$107,787	..
1854.									
Danbury and Norwalk	24	\$371,504	\$48,664	\$35,653	\$13,011	\$28,758	\$17,628	\$2,378	..
Hartford and New Haven	72	3,339,366	757,651	398,760	358,891	476,174	243,643	37,834	10
Hartford, Providence and Fishkill	50	3,751,726	179,048	63,550	115,498	98,031	72,314	8,708	..
Housatonic	74	2,507,819	330,792	300,408	30,384	108,521	207,793	14,478	..
Naugatuck	57	1,577,167	269,743	269,743	.....	99,971	164,821	4,952	4
New Haven and New London	50	1,450,384	103,986	59,618	44,368	87,607	9,326	7,053	..
New Haven and Northampton	55	1,400,000	147,606	56,200	91,406	.....	.....	.....	4
New London, Willimantic and Palmer	66	1,527,827	137,066	65,357	71,709	63,331	63,696	10,039	..
New York and New Haven	62	5,131,488	875,523	528,512	347,011	716,436	127,340	31,749	..
Norwich and Worcester	59	2,596,488	322,754	191,201	131,553	138,374	161,268	23,112	6
Total	569	\$23,653,769	\$3,172,833	\$1,969,002	\$1,203,831	\$1,817,203	\$1,067,829	\$140,298	..
1855.									
Danbury and Norwalk	24	\$373,460	\$54,241	\$34,340	\$19,901	\$28,816	\$25,270	\$2,155	5
Hartford and New Haven	72	3,565,018	730,012	377,213	352,799	444,239	250,039	35,734	10
Hartford, Providence and Fishkill	122	3,936,734	258,685	139,074	119,611	166,626	82,224	9,835	..
Housatonic	74	2,507,819	339,196	239,371	99,825	110,461	215,424	13,312	..
Naugatuck	57	1,580,723	188,982	124,503	63,979	70,680	112,967	5,335	..
New Haven and New London	50	1,455,569	88,007	57,688	30,319	70,208	11,061	6,738	..
New Haven and Northampton	55	1,400,000	147,606	62,460	85,146	.....	.....	.....	4
New London, Willimantic and Palmer	66	1,594,382	124,043	57,712	66,331	58,099	55,641	13,303	..
New York and New Haven	62	4,980,407	882,742	571,584	311,158	685,056	131,217	66,469	..
Norwich and Worcester	59	2,597,153	304,235	215,777	88,381	125,998	155,592	22,645	2 1/2
Total	641	\$23,991,265	\$3,115,749	\$1,877,722	\$1,238,027	\$1,760,183	\$1,039,433	\$175,526	..
1856.									
Danbury and Norwalk	24	\$377,460	\$61,134	\$35,098	\$26,036	\$30,852	\$27,936	\$2,346	3
Hartford and New Haven	72	3,329,337	730,794	393,555	337,239	430,447	264,667	35,670	15
Hartford, Providence and Fishkill	122	4,030,349	340,586	171,160	169,426	190,555	137,301	12,730	..
Housatonic	74	2,507,819	329,297	256,870	72,427	104,687	207,861	16,799	..
Naugatuck	57	1,576,926	237,416	109,848	127,568	84,866	146,828	5,722	..
New Haven and New London	50	1,455,040	88,007	57,688	30,319	70,208	11,061	6,738	..
New Haven and Northampton	55	1,400,000	173,954	81,427	92,527	.....	.....	.....	4
New London, Willimantic and Palmer	66	1,603,230	120,571	93,731	26,840	51,522	59,559	9,490	..
New York and New Haven	62	5,070,979	881,394	577,649	303,745	685,064	152,048	44,282	..
Norwich and Worcester	59	2,598,677	323,402	233,695	89,707	134,197	170,851	18,354	..
Total	641	\$23,949,817	\$3,186,555	\$2,010,721	\$1,175,834	\$1,748,248	\$1,106,257	\$153,641	..
1857.									
Danbury and Norwalk	24	\$383,010	\$61,544	\$34,532	\$27,012	\$28,439	\$30,379	\$2,726	6
Hartford and New Haven	72	3,773,547	769,065	372,807	396,258	455,036	274,662	39,367	10
Hartford, Providence and Fishkill	122	4,123,964	367,894	201,732	166,162	206,563	148,877	12,954	..
Housatonic	74	2,623,820	318,475	284,556	33,919	102,860	196,114	19,501	..
New Haven and New London	50	1,454,040	157,657	109,935	47,722	126,842	18,136	12,679	..
New Haven and Northampton	55	1,400,000	172,368	82,081	90,287	.....	.....	.....	5
New London, Willimantic and Palmer	66	1,603,230	115,803	77,541	38,262	50,999	54,976	9,828	..
Naugatuck	57	1,578,301	209,555	119,222	90,333	78,187	119,606	11,761	..
New York and New Haven	62	5,170,915	971,708	569,744	401,964	749,324	175,937	46,447	3
Norwich and Worcester	59	2,616,811	287,756	243,139	44,617	124,554	150,828	12,874	..
Total	641	\$24,727,688	\$3,431,905	\$2,095,289	\$1,336,536	\$1,922,804	\$1,168,515	\$168,137	..
1858.									
Danbury and Norwalk	24	\$383,010	\$61,544	\$34,532	\$27,012	\$28,439	\$30,379	\$2,726	..
Hartford and New Haven	72	3,773,597	628,845	306,854	321,391	371,906	215,557	40,782	10
Hartford, Providence and Fishkill	122	4,119,431	273,427	161,102	112,325	.....	.....	.....	..
Housatonic	74	2,555,837	271,918	204,135	67,923	90,929	158,918	21,426	..
New Haven and New London	50	1,473,317	76,758	66,548	10,210	59,970	8,823	7,960	..
New Haven and Northampton	55	1,400,000	156,057	75,707	80,350	.....	.....	.....	4
New London, Willimantic and Palmer	66	1,603,230	115,803	77,541	38,262	50,999	55,976	9,990	..
Naugatuck	57	1,578,301	209,555	119,222	90,333	78,187	119,606	5,722	..
New York and New Haven	62	5,258,232	855,994	623,425	231,569	623,149	138,084	53,761	..
Norwich and Worcester	59	2,613,694	183,187	183,189	100,367	111,230	157,871	14,455	..
Total	641	\$24,758,649	\$2,832,090	\$1,652,254	\$979,836	\$1,414,809	\$691,214	\$156,472	..

Maryland Institute.

The annual meeting of the Maryland Institute for the election of officers, was held on the 20th inst., at the Institute Building, and was quite numerously attended. The election resulted as follows:—President, Samuel Sands; Vice President, John F. Meredith and James M. Anderson; Recording Secretary, G. H. Hunt; Corresponding Secretary, S. Morris Cochran; Treasurer, Hugh Bolton. Board of Managers, William Keyser, Thomas Trimble, S. S. Mills, Thomas J. Lovegrove, John Jones, W. W. Maughlin, J. Mowton Saunders, N. H. Thayer, Ezra Whitman, C. W. Bentley, James McNab, D. L. Bartlett, J. Crawford Neilson, Adam Denmead, William H. Young, V. O. Bareckson, Samuel Hindes, James Stirratt, John H. Tezmeyer, W. Henry Johnson, Abram G. Mott, George H. Rogers, Thomas Stow, James Young.

From the report of the Committee on Finance the following extract is taken:

On account of	Total	Amount
	Receipts.	Paid.
Exhibition	\$8,018 83	\$4,863 27
Library	275 95	1,421 83
Male school	617 00	3,576 28
Female school dept'	383 24	1,048 95
Hall	3,037 23	3,584 66
Chemical	5 25	920 15
Lecture department	132 50	660 58
Education	124 00	153 44
Miscellaneous	12,662 00	9,039 39
Total	\$25,256 00	\$25,273 54

On account of.	Amount	Amount	On account
	against	in favor	preceding
	Institute.	Institute.	years.
Exhibition	\$444 50	\$3,155 56	\$701 37
Library	1,352 53		1,606 75
Male school	601 97		63 74
Female do	96 01		451 42
Hall	467 61		447 29
Chemical	404 19		123 89
Lecture dept'		5 06	39 50
Education		3,622 61	1,247 44
Miscellaneous			
Total	\$3,366 81	\$6,783 23	\$4,681 40
		3,366 81	

Leaving in favor of the In-
stitute

Long Island Railroad.

The Long Island railroad commences at Jamaica, and extends, via Hempstead, Hicksville, Farmingdale, and River Head, to Greenport, on the eastern end of Long Island, a distance of 84 miles. The Brooklyn and Jamaica railroad, which is leased and operated by the Long Island company, and by which they reach their present terminus at South Ferry, Brooklyn, is 11 miles in length—making a total of 95 miles. By the terms of this lease, 11 per cent. of the gross receipts of both roads are paid to the Brooklyn and Jamaica company as rent, with a proviso that the amount shall not be less than \$21,000, nor greater than \$33,300 in any one year. The maximum has been reached, and will doubtless so continue.

The company have determined to change the terminus of the road from Atlantic street, Brooklyn, to Hunter's Point, which will be effected during the present year. This new route will be furnished as follows: The Flushing railroad, eight miles in length, extending from Hunter's Point, to Flushing, is to be purchased. A new road is to be built, diverging from the Flushing road at Winfield, (8.65 miles from Hunter's Point,) to the Brooklyn and Jamaica railroad, three-fourths of a mile west of Jamaica—and both the Flushing road and the new road, together with the right of

way for two tracks over the Brooklyn and Jamaica road, from the end of the new road to Jamaica, to be conveyed to the Long Island railroad company—together with half the equipment now on the Flushing road—for the sum of \$337,000, payable \$62,000 in cash, and \$275,000 in 7 per cent. mortgage bonds on the Flushing and new road, having 30 years to run, interest and principal payable by the Long Island railroad company. By the new route, the distance by rail will be lessened 1.49 miles. The distance by boat from Hunter's Point to Fulton street New York, is about four miles—being an increase of three miles over the present ferriage.

In order to do this the company require to be relieved of their present lease of the Brooklyn and Jamaica road, and the depot grounds at South Ferry. This done, the annual saving in rent, depot expenses, flagman and horses will be \$37,800—sufficient to pay interest on the cost of the new road, wages of flag and draw bridge men, amounting in all to \$26,840—leaving a balance annually of \$10,960. The receipts of the Flushing road have been about \$40,000 per annum; the operating expenses \$20,000; and the ferry expenses \$20,000—leaving no surplus, but contributing \$20,000 towards sustaining the ferry. If to this be added the \$10,960, and \$12,000 additional which will be contributed to it by the Long Island railroad, will make a total ferry fund of \$42,960.

In the report of the company for the fiscal year ending March 31, 1859 the following statement is made of the receipts, expenditures and net earnings, viz:

Receipts:	
From passengers	\$189,988 36
" freight	140,054 47
" mails	8,225 00
" unloading freight, etc	5,770 30
	\$334,038 13
Expenses:	
Operating road	\$180,514 57
Interest paid	32,920 00
Rent of Brooklyn and Jamaica and Cold Spring Branch roads, and depot at South Ferry	41,334 62
Equipment	658 00
	255,427 19

Net surplus

The receipts show an increase, as compared with the previous year, of \$8,725—the difference being made up wholly from an increase of freight business. The expenses were less by \$13,699 81; and the net surplus \$12,424 81 more. This surplus is greater than that of any previous year. The report speaks most encouragingly of the freight business. The total receipts from business connected with the dairy alone yielding \$18,513.49. There is also a steadily increased freightage from vegetables and fruit.

The company have 19 locomotives, 34 passenger, 4 mail, 3 horse, and 156 freight cars, with 16 crates and 6 snow ploughs. The value of the company's property exclusive of wood, cross-ties and depot lots, is given at \$227,885 75.

The capital stock of the company is 66,000 shares—the par value of which is \$3,000,000.

The funded debt, consisting of mortgage bonds of 1860, due in 1870, is \$500,000. The other liabilities of the company amount to \$144,566 07—making a total of \$3,644,566 07. The total re-

ceipts during the year, including balance from previous year, were \$340,227 65; and the disbursements \$282,817 51—leaving a balance of cash on hand April 1, 1859, of \$57,410 14.

The officers are—Wm. E. MORRIS, *President and Superintendent*; Wm. S. S. RUSSELL, *Secretary and Treasurer*.

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1m15

April 9, 1859.

Notice to Contractors.

SEALED PROPOSALS for the grading and masonry of the extension of the ROANOKE VALLEY RAILROAD, from Clarksville to Keyesville, on the Richmond and Danville Railroad, will be received at the office of the Company in Clarksville until the 12th of May. The road will be thirty miles long. Plans and specifications of the work may be seen in Clarksville on and after the 5th of May. Letters of inquiry may be addressed to Henry Wood, Esq., President Roanoke Valley Railroad, Clarksville, Va., or to me at Christiansville P. O., Mecklenburg Co., Va.

B. W. JONES,
Chief Engineer.

4t16

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PATENTS NEGOTIATED.

DRAWINGS, Specifications, and Models, (metal or wood) Applications for Patents, and all business whatever connected with Patents attended to with economy and despatch. Application for PATENT, including drawings, specifications and Patent Office fees, \$60.

Patents for Inventions.

T. D. STETSON, Agent for procuring patents, No. 5 Tryon T. Row, (near City Hall). A circular with full information sent free by mail. American correspondent *Prac. Mechanics' Jour* from 1864.

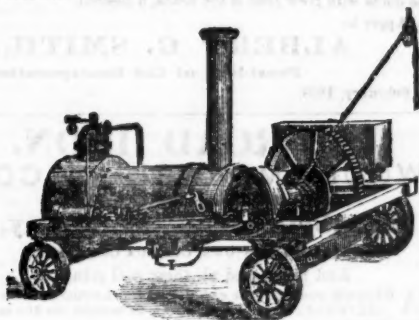
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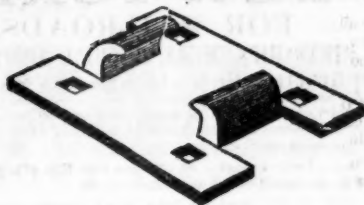
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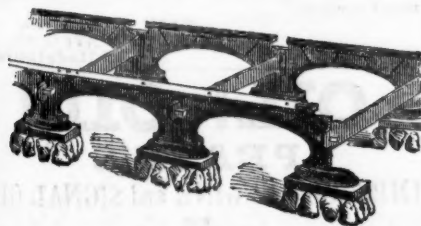
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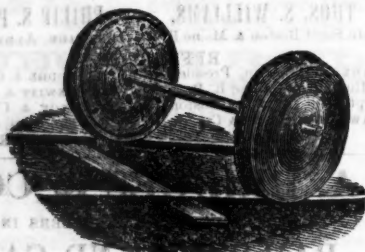
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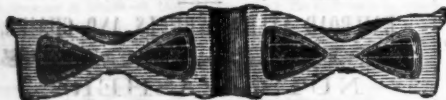
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